

#### REMARKS

Applicants respectfully request favorable reconsideration of this application.

Claims 33 and 77 have been amended to correct an apparent minor error. Claims 1-32 have been previously cancelled. Claims 41 and 59-76 are withdrawn from consideration. Accordingly, Claims 33-40, 42-58, and 77-87 are active in the application.

Claims 33-35, 38-39, 42-44, 46, 51, 57-58, 77-79, 82-83, and 87 were rejected under 35 U.S.C. § 102(e) as being anticipated by Huang, U.S. Patent No. 6,893,465 (Huang). Claims 36-37, 40, 45, 47-50, 53-56, 80-81, and 84-86 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Huang reference. Reconsideration of the rejections is respectfully requested.

Regarding the rejection of Claims 33-35, 38-39, 42-44, 46, 51, 57-58, 77-79, 82-83, and 87 under 35 U.S.C. § 102(e), Applicants initially discuss the deficiencies of the rejection as applied to independent Claims 33 and 77. The failure of the Huang reference to support a rejection of the independent claims under 35 U.S.C. § 102(e) requires a withdrawal of the rejection, and the consequent patentability of Claims 33 and 77 establishes the patentability of Claims 34-35, 38-39, 42-44,

46, 51, 57-58, 78-79, 82-83, and 87, dependent directly or indirectly, from one of the independent claims.

Initially, the rejection is fatally flawed because the Huang reference fails to disclose

"...a polymer core comprising an annulus  
surrounding a central cavity, said annulus having  
having upper and lower side surfaces and said  
central cavity extending axially therethrough, ..."

as recited in independent Claims 33 and 77, and thereby incorporated into all claims dependent, directly or indirectly therefrom.

In particular, Figure 3 of the Huang reference, reproduced with annotations in the Office Action (page 3) fails to show any structure that can be described as a polymer core comprising an annulus. The plain meaning of the term annulus, i.e., a ring, requires an axial cavity extending therethrough, and such meaning is elaborated in the specification (paragraph [0019]) of the application and illustrated, for example, in Figure 16. Although the annotated Figure 3 purports to identify a central portion of the prosthesis as having a central cavity extending axially therethrough, Applicants do not see in the illustration any

such cavity that extends through an annulus. On the contrary, an inspection of Huang's Figure 3 establishes that the indicated portion of the structure, identified as a "recess 34" (column 4, lines 10, 34, 38, and 45), does not extend through the lower portion 31 of Huang's cushioning coupler 3. Instead, the lower portion 31 of the cushioning coupler 3 extends continuously across the longitudinal axis X (identified and described at column 2, lines 28, 65) of Huang's prosthesis, thus excluding any "central cavity extending axially therethrough", as recited in independent Claims 33 and 77.

Furthermore, the portion of Huang's illustrated prosthesis that the Office attempts to identify as an annulus 35 (Office Action, page 2, fourth paragraph, line 2 thereof, and annotated Figure 3, Office Action, page 3) is consistently described in Huang's specification as a sac 35. As disclosed and illustrated, Huang's sac 35 is shown as filled with a liquid (column 4, lines 47-48, and liquid symbol hatching in figures). Thus, Huang's sac 35 does not meet the language of Claims 33 and 77, "... said annulus ... being made of a first biocompatible material ... the first biocompatible material being an elastomer having an elastic modulus approximating that of the annulus fibrosus of the natural human intervertebral disc, ...". Consequently, this

deficiency of the Huang reference also precludes a rejection of Claims 33 and 77 under 35 U.S.C. § 102(e).

Furthermore, the Huang reference fails to disclose

"... upper and lower transition plates made from a second biocompatible material having a durometer hardness greater than that of the first biocompatible polymer, ..."

The elements of the Huang prosthesis identified by the Office as "upper and lower transitional plates, 13 and 23," (page 2, third full paragraph, line 8 thereof), are described in Huang's specification as base plates 13 (column 2 line 35) and 23 (column 3, line 6) of the upper fusion cage 11 and lower fusion cage 21, respectively. The plates are described as being formed of bio-compatible materials including stainless steel, and other metals (column 3, lines 14-18). Notably absent from this discussion is any mention of the hardness of these metals. Indeed, the term "durometer" does not appear in the Huang reference -- understandably so, since it is well known that the concept of durometer hardness implies a material made from a plastic or elastomeric material, not metal. Consequently, there is no literal disclosure or suggestion

in the Huang reference of a transition plate having a durometer hardness greater than that of the polymeric annulus, and thus, no support for a rejection of independent Claims 33 and 77 under 35 U.S.C. § 102(e).

The above discussion establishes that there is no disclosure or suggestion of each element of the invention, as claimed in independent Claims 33 and 77, to be found within the four corners of the Huang reference. Accordingly, these claims are patentable over the applied reference, and withdrawal of the rejection is respectfully requested. As observed above, it follows that any claims dependent directly or indirectly from the allowable claims are also allowable.

In addition, certain features of the invention recited in particular dependent claims are clearly lacking in Huang's disclosure. For example:

- The Office does not even attempt to assert that Huang's structures identified by the Office identifies as upper an lower transitional endplates 13 and 23 are made of a second elastomeric synthetic polymer, as recited in Claim 38 and Claims 39 and 40, dependent therefrom.

- The Office refers to Figure 1 as illustrating a projection at a posterior edge of an endplates shaped to form a groove for receiving a posterior edge of a transition plate. Aside from the fact that Huang does not identify anterior and posterior edges of his prosthesis, the Office has not indicated, by textual reference, where such a groove is identified, and Applicants can find no such groove in Huang's Figure 1. Accordingly, Claims 51 and 87, which specifically recite this structure are not appropriately rejected under 35 U.S.C. § 102(e).
- The Office identifies a fin 121 as extending from an anterior edge along a lateral midline of the outer surface of an endplate (page 3, first full paragraph, lines 7-10). However, Huang (at the referenced text, column 2, lines 49-53) describes structure 121 as one of a plurality of teeth, and inspection of Figure 1 confirms that the structure 121 has no substantial extension along a lateral midline, as required by the language of Claim 58.
- The Office asserts that, "The cavity is filled with an incompressible liquid ...", referencing column 3, lines 49-51, of the Huang reference. However, the structure described at that location is an annular

chamber A that is located radially outside of any structure that the Office identifies as an annulus. Accordingly, such identification of Huang's liquid-filled annular chamber A with any structure recited in Applicant's claims, and in particular with the liquid-filled central cavity recited in, e.g., Claim 44, is both unsupported by the reference and inconsistent with the Office's position as asserted elsewhere in the Office Action.

In view of the above amendments and discussion, a rejection of Claims 33-35, 38-39, 42-44, 46, 51, 77-79, 82-83, and 87 under 35 U.S.C. § 102(e) is not supported by the disclosures of Huang '465, and withdrawal of the rejection is respectfully requested.

Regarding the rejection of Claims 36-37, 40, 45, 47-50, 53-56, 80-81, and 84-86 under 35 U.S.C. § 103(a) the deficiencies of the sole applied reference have been discussed above. In view of the patentability of Claims 33 and 77 over the disclosures of Huang '465, Claims 36-37, 40, 45, 47-50, 53-56, 80-81 and 84-86, dependent directly or indirectly therefrom, are also patentable. Accordingly, withdrawal of the rejection of those claims under 35 U.S.C. § 103(a) is respectfully requested.

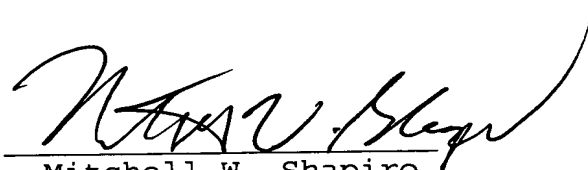
In view of the above amendments and discussion, this application is believed to be in condition for allowance, and an early Notice of Allowance is respectfully requested.

Furthermore, in view of the allowability of Claim 33, an allowable claim generic to the non-elected species is present in the application. Accordingly, rejoinder of withdrawn Claims 41 and 59-76 is appropriate, and such rejoinder and allowance of those claims is respectfully requested.

The Commissioner is hereby authorized to charge to Deposit Account No. 50-1165 any fees under 37 C.F.R. §§ 1.16 and 1.17 that may be required by this paper and to credit any overpayment to that Account. If any extension of time is required in connection with the filing of this paper and has not been requested separately, such extension is hereby requested.

Respectfully requested,

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